IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT/APPELLANT:	Norikazu Endo and Benjamin K. Reaves
APPLICATION NO.:	10/661,152
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TITLE:	Method and System for Adjusting the Voice Prompt of an Interactive System Based Upon the User's State
EXAMINER:	Abdelali Serrou
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APPEAL BRIEF

Sir:

This Appeal Brief is filed timely within 1 month from the mailing date (July 7, 2008) of the Decision from Pre-Appeal Brief Review, with the $510 fee required under 37 C.F.R. §41.20(b)(2).

Real party in interest

The subject patent application is owned by Toyota InfoTechnology Center Co., Ltd.

Related appeals and interferences

There are no prior or pending appeals, interferences, or judicial proceedings known to the appellant, the appellant's legal representative, or the assignee, which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in this pending appeal.

Status of claims

Claims 1, 3-15, 17-28, 30-40, and 42-61 stand finally rejected in a Final Office Action mailed on September 27, 2007.

Claims 2, 16, 29, and 41 were previously canceled in an amendment filed on July 25, 2007.

Appellants appeal from the final rejection of all the finally rejected claims 1, 3-15, 17-28, 30-40, and 42-61, which are set forth in the Claims appendix attached hereto.

Status of amendments

Applicant has not filed any amendment subsequent to the final rejection.

Summary of claimed subject matter

A. Independent claim 1

Independent claim 1 defines a method of adjusting a voice prompt of a system based upon a state of a user of the system (see e.g., page 2, lines 20-21 of the specification; page 7, lines 8-10 of the specification; Figure 1 (method 100)). The method of claim 1 comprises:

receiving an utterance of the user (see e.g., page 2, lines 21-22 of the specification; page 7, lines 16-18 of the specification; Figure 1 (step 104));

obtaining utterance parameters from the utterance, the utterance parameters indicating the state of the user (see e.g., page 7, lines 18-20 of the specification; page 8, line 1 through page 9, line 9 of the specification; Figure 1 (step 106); Figure 2 (steps 202, 204));

determining the state of the user based upon the utterance parameters (see e.g., page 3, line 1 of the specification; page 10, line 13 through page 11, line 4 of the specification; page 11, line 17 through page 12, line 18 of the specification; Figure 1 (steps 110 and 112)); and

adjusting the voice prompt by adjusting at least one of a tone of voice of the voice prompt, a content of the voice prompt, a prosody of the voice prompt, and a gender of the voice prompt based upon the determined state of the user (see e.g., page 13, line 10 through page 14, line 17 of the specification; Figure 1 (step 114)).

The utterance parameters are obtained by partitioning the utterance into segments (see e.g., page 8, lines 1-5 of the specification; Figure 2 (step 202)), and assigning one of a plurality of classifications to each segment with each classification corresponding to at least one of a plurality of states of the user (see e.g., page 8, line 6 through page 9, line 9 of the specification; Figure 2 (step 204)).

B. Independent claim 15

Independent claim 15 defines a method of adjusting a voice prompt of a system based upon a state of a user of the system (see e.g., page 2, lines 20-21 of the specification; page 7, lines 8-10 of the specification; Figure 1 (method 100)). The method of claim 15 comprises:

receiving an utterance of the user (see e.g., page 2, lines 21-22 of the specification; page 7, lines 16-18 of the specification; Figure 1 (step 104));

obtaining utterance parameters from the utterance, the utterance parameters indicating the state of the user (see e.g., page 7, lines 18-20 of the specification; page 8, line 1 through page 9, line 9 of the specification; Figure 1 (step 106); Figure 2 (steps 202, 204));

generating an utterance parameter vector based upon the obtained utterance parameters (see e.g., page 3, lines 9-10 of the specification; page 7, lines 18-20 of the specification; page 9, line 10 through page 10, line 12 of the specification; Figure 1 (step 108) and Figure 2 (steps 206, 208));

converting the utterance parameter vector to an indication representing the state of the user (page 3, lines 14-20 of the specification; page 10, line 13 through page 11, line 4 of the specification; Figure 1 (step 110));

determining the state of the user based upon the indication (see e.g., page 3, line 1 and lines 11-12 of the specification; page 11, line 17 through page 12, line 18 of the specification; Figure 1 (step 112)); and

adjusting the voice prompt based upon the determined state of the user (see e.g., page 13, line 10 through page 14, line 17 of the specification; Figure 1 (step 114)).

The utterance parameters are obtained by partitioning the utterance into segments (see e.g., page 8, lines 1-5 of the specification; Figure 2 (step 202)), and assigning one of a plurality of classifications to each segment with each classification corresponding to at least one of a plurality of states of the user (see e.g., page 8, line 6 through page 9, line 9 of the specification; Figure 2 (step 204)).

C. Independent claim 28

Independent claim 28 defines a system adjusting a voice prompt based upon a state of a user of the system (see page 4, lines 9-10 of the specification; page 15, lines 3-7 of the specification; Figure 3 (interactive system 300)). The system comprises:

a signal processing module for obtaining utterance parameters from utterance received from the user, the utterance parameters indicating the state of the user (see e.g., page 4, lines 10-12 of the specification; page 15, line 20 through page 16, line 6 of the specification; page 7, lines 18-20 of the specification; page 8, line 1 through page 9, line 9 of the specification; Figure 3 (signal processing module 304); Figure 1 (step 106); Figure 2 (steps 202, 204));

an utterance parameter vector generation module for generating an utterance parameter vector based upon the obtained utterance parameters (see e.g., page 4, lines 12-13 of the specification; page 16, lines 7-16 of the

specification; page 7, lines 18-20 of the specification; page 9, line 10 through page 10, line 12 of the specification; Figure 3 (utterance parameter vector generation module 314); Figure 1 (step 108) and Figure 2 (steps 206, 208));

a user state determination module for converting the utterance parameter vector to an indication representing the state of the user and determining the state of the user based upon the indication (see e.g., page 4, lines 13-16 of the specification; page 16, line 17 through page 17, line 7 of the specification; page 10, line 13 through page 11, line 4 of the specification; Figure 3 (user state determination module 316); Figure 1 (step 110)); and

a speech waveform storage module for selecting an audio waveform for the voice prompt based upon the determined state of the user (see e.g., page 4, lines 16-17 of the specification; page 17, line 8 through page 18, line 15 of the specification; Figure 3 (speech waveform storage module 318)).

The signal processing module obtains the utterance parameters by partitioning the utterance into segments (see e.g., page 15, lines 20-21 of the specification; page 8, lines 1-5 of the specification; Figure 3 (signal processing module 304); Figure 2 (step 202)), and assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user (see e.g., page 15, lines 21-22 of the specification; page 8, line 6 through page 9, line 9 of the specification; Figure 3 (signal processing module 304); Figure 2 (step 204)).

D. Independent claim 40

Independent claim 40 defines a system adjusting a voice prompt based upon a state of a user of the system (see page 4, lines 9-10 of the specification; page 15, lines 3-7 of the specification; Figure 3 (interactive system 300); Figure 4 (interactive system 400)). The system comprises:

a signal processing module for obtaining utterance parameters from utterance received from the user, the utterance parameters indicating the state of the user (see e.g., page 4, lines 10-12 of the specification; page 15, line 20 through page 16, line 6 of the specification; page 7, lines 18-20 of the specification; page 8, line 1 through page 9, line 9 of the specification; page 20, lines 4-11 of the specification; Figure 3 (signal processing module 304); Figure 4 (signal processing module 404); Figure 1 (step 106); Figure 2 (steps 202, 204));

an utterance parameter vector generation module for generating an utterance parameter vector based upon the obtained utterance parameters (see e.g., page 4, lines 12-13 of the specification; page 16, lines 7-16 of the specification; page 7, lines 18-20 of the specification; page 9, line 10 through page 10, line 12 of the specification; page 20, lines 4-11 of the specification; Figure 3 (utterance parameter vector generation module 314); Figure 4 (utterance parameter vector generation module 414); Figure 1 (step 108) and Figure 2 (steps 206, 208));

a user state determination module for converting the utterance parameter vector to an indication representing the state of the user and determining the state of the user based upon the indication (see e.g., page 4, lines 13-16 of the

specification; page 16, line 17 through page 17, line 7 of the specification; page 10, line 13 through page 11, line 4 of the specification; page 20, lines 4-11 of the specification; Figure 3 (user state determination module 316); Figure 4 (user state determination module 416); Figure 1 (step 110)); and

a speech synthesizer module for generating an audio waveform of the voice prompt based upon the determined state of the user (see e.g., page 5, line 14 through page 6, line 2 of the specification; page 20, line 12 through page 22, line 4 of the specification; Figure 4 (speech synthesizer module 418)).

The signal processing module obtains the utterance parameters by partitioning the utterance into segments (see e.g., page 15, lines 20-21 of the specification; page 8, lines 1-5 of the specification; page 20, lines 4-11 of the specification; Figure 3 (signal processing module 304); Figure 4 (signal processing module 404); Figure 2 (step 202)); and assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user (see e.g., page 15, lines 21-22 of the specification; page 8, line 6 through page 9, line 9 of the specification; page 20, lines 4-11 of the specification; Figure 3 (signal processing module 304); Figure 4 (signal processing module 404); Figure 2 (step 204)).

E. Independent claim 53

Independent claim 53 is a means plus function claim permitted under 35 U.S.C. §112, sixth paragraph, and defines a system adjusting a voice prompt based upon a state of a user of the system (see page 4, lines 9-10 of the specification; page 15, lines 3-7 of the specification; Figure 3 (interactive system 300); Figure 4 (interactive system 400)). The system comprises:

means for obtaining utterance parameters from utterance received from the user,

the utterance parameters indicating the state of the user (see e.g., page 4, lines 10-12 of the specification; page 15, line 20 through page 16, line 6 of the specification; page 7, lines 18-20 of the specification; page 8, line 1 through page 9, line 9 of the specification; page 20, lines 4-11 of the specification; Figure 3 (signal processing module 304); Figure 4 (signal processing module 404); Figure 1 (step 106); Figure 2 (steps 202, 204));

means for determining the state of the user based upon the utterance parameters (see e.g., page 4, lines 13-16 of the specification; page 16, line 17 through page 17, line 7 of the specification; page 10, line 13 through page 11, line 4 of the specification; page 20, lines 4-11 of the specification; Figure 3 (user state determination module 316); Figure 4 (user state determination module 416); Figure 1 (step 110)); and

means for adjusting the voice prompt by adjusting at least one of a tone of voice of the voice prompt, a content of the voice prompt, a prosody of the voice prompt, and a gender of the voice prompt based upon the determined state of the user (see e.g., page 4, lines 16-17 of the specification; page 5, line 8 through page 6, line 2 of the specification; page 13, line 10 through page 14, line 17 of the specification; page 17, line 8 through page 18, line 15 of the specification; page 20, line 12 through page 22, line 4 of the specification; Figure 3 (speech waveform storage module 318)); Figure 4 (speech synthesizer module 418)).

The means for obtaining utterance parameters (see e.g., page 4, lines 10-12 of the

specification; page 15, line 20 through page 16, line 6 of the specification; page 7, lines 18-20 of the specification; page 8, line 1 through page 9, line 9 of the specification; page 20, lines 4-11 of the specification; Figure 3 (signal processing module 304); Figure 4 (signal processing module 404); Figure 1 (step 106); Figure 2 (steps 202, 204)) comprises:

means for partitioning the utterance into segments (see e.g., page 15, lines 20-21 of the specification; page 8, lines 1-5 of the specification; page 20, lines 4-11 of the specification; Figure 3 (signal processing module 304); Figure 4 (signal processing module 404); Figure 2 (step 202)); and

means for assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user (page 15, line 21 of the specification; page 8, line 5 through page 9, line 9 of the specification; page 20, lines 4-11 of the specification; Figure 3 (signal processing module 304); Figure 4 (signal processing module 404); Figure 2 (step 204)).

F. Dependent claim 54

Dependent claim 54 is a means plus function claim permitted under 35 U.S.C. §112, sixth paragraph, and further defines the invention of claim 53 by adding that the means for determining the state of the user based upon the utterance (see e.g., page 4, lines 13-16 of the specification; page 16, line 17 through page 17, line 7 of the specification; page 10, line 13 through page 11, line 4 of the specification; page 20, lines 4-11 of the specification; Figure 3 (user state determination module 316); Figure 4 (user state determination module 416); Figure 1 (step 110)) comprises:

means for generating an utterance parameter vector based upon the utterance parameters (see e.g., page 4, lines 12-13 of the specification; page 16, lines 7-16 of the specification; page 7, lines 18-20 of the specification; page 9, line 10 through page 10, line 12 of the specification; page 20, lines 4-11 of the specification; Figure 3 (utterance parameter vector generation module 314); Figure 4 (utterance parameter vector generation module 414); Figure 1 (step 108) and Figure 2 (steps 206, 208));

means for converting the utterance parameter vector to an indication representing the state of the user (see e.g., page 4, lines 13-16 of the specification; page 16, line 17 through page 17, line 7 of the specification; page 10, line 13 through page 11, line 4 of the specification; page 20, lines 4-11 of the specification; Figure 3 (user state determination module 316); Figure 4 (user state determination module 416); Figure 1 (step 110)); and

means for determining the state of the user based upon the indication (see e.g., page 16, line 21 through page 17, line 3 of the specification; page 3, line 1 and lines 11-12 of the specification; page 4, lines 15-16 of the specification; page 11, line 17 through page 12, line 18 of the specification; page 20, lines 4-11 of the specification; Figure 3 (user state determination module 316); Figure 4 (user state determination module 416); Figure 1 (step 112)).

G. Dependent claim 57

Dependent claim 57 is a means plus function claim permitted under 35 U.S.C. §112, sixth paragraph, and further defines the invention of claim 53 by adding that the means for

adjusting the voice prompt adjusts the tone of the voice prompt to use a tone that is consistent with the determined state of the user (see e.g., page 13, line 10 through page 14, line 17 of the specification; page 18, lines 1-15 of the specification; page 20, line 21 through page 22, line 4 of the specification; page 20, lines 4-11 of the specification; Figure 3 (speech waveform storage module 318); Figure 4 (speech synthesizer module 418)).

H. Dependent claim 59

Dependent claim 59 is a means plus function claim permitted under 35 U.S.C. §112, sixth paragraph, and further defines the invention of claim 53 by adding that the means for adjusting the voice prompt adjusts the gender of the voice prompt to use a gender that is consistent with the determined state of the user (see e.g., page 13, line 10 through page 14, line 17 of the specification; page 18, lines 1-15 of the specification; page 20, line 21 through page 22, line 4 of the specification; page 20, lines 4-11 of the specification; Figure 3 (speech waveform storage module 318); Figure 4 (speech synthesizer module 418)).

I. Dependent claim 61

Dependent claim 61 is a means plus function claim permitted under 35 U.S.C. §112, sixth paragraph, and further defines the invention of claim 53 by adding that the system is an on-board computer used in an automobile or a navigation system used in an automobile (see page 11, lines 5-6 of the specification; page 15, lines 3 through 17 of the specification; page 19, line 15 through page 20, line 3 of the specification; Figure 3 (interactive system 300); Figure 4 (interactive system 400)).

Grounds of rejection to be reviewed on appeal

A. Claims 1, 3-6, 8, 10-11, 15, 17-19, 21, 23-24, 28, 30-32, 34, 36, 40, 42-46, 48-49, 53-56, 58, and 60 were rejected under 35 U.S.C. §102(e) as being anticipated by US Patent No. 6,757,362 issued to Cooper et al. (hereinafter "Cooper")

B. Claims 7, 9, 20, 22, 33, 35, 47, 57, and 59 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cooper in view of Pelland et al. (US Patent Application Publication No. 2002/0029203, hereinafter "Pelland").

C. Claims 12-14, 25-27, 37-39, 50-52, and 61 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cooper in view of Millie et al. (Alex Millie et al., "Driver-Friendly Assistance System Interface," [online], March 14, 2002, [retrieved prior to August 6, 2003], retrieved from the Internet: <URL: http://shunk.standord.edu:88/Get/File-2966/ToyotaWinterDesignReview2002Rev2[1].ppt> (21 pages), hereinafter "Millie").

Each of these rejections is improper because the cited references, alone or in combination, do not teach or suggest the claimed subject matter. In particular, the Examiner has not established anticipation or a *prima facie* basis for obviousness.

Each of these rejections is presented for review in this appeal.

Argument

A. Rejection of claims 1, 3-6, 8, 10-11, 15, 17-19, 21, 23-24, 28, 30-32, 34, 36, 40, 42-46, 48-49, 53-56, 58, and 60 under 35 U.S.C. §102(e) as being anticipated by Cooper

In paragraph 3 of the Final Office Action, claims 1, 3-6, 8, 10-11, 15, 17-19, 21, 23-24, 28, 30-32, 34, 36, 40, 42-46, 48-49, 53-56, 58, and 60 were rejected as being anticipated by US

Patent No. 6,757,362 issued to Cooper et al. (hereinafter "Cooper"). See Final Office Action mailed on 9/27/2007 (hereinafter "9/27/2007 Final Office Action"), pages 2-4, paragraph 3. This rejection is traversed.

1. Independent claims 1, 15, 28, 40, and 53

Independent claims 1, 15, 28, 40, and 53 recite:

"… partitioning the utterance into segments; and

… assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user."

In summary, the inventions of claims 1, 15, 28, 40, and 53 obtain utterance parameters that indicate the state of the user, by partitioning the utterance into segments and assigning one of a plurality of classifications to each segment, where each classification corresponds to at least one of a plurality of states of the user. As the specification explains, a "segment" may be each phrase in the utterance with a minimum number of phonemes, and the starting and ending points of a segment may be determined by detecting a pause, a silence or sudden change in the utterance. See e.g., page 8, lines 2-4 of the specification. Alternatively, the segments may correspond to words and pauses in the utterance and each word may be assigned a classification of a general word and a particular type of emotionally sensitive word based on speech recognition. See e.g., page 9, lines 1-9 of the specification. According to the claimed inventions of 1, 15, 28, 40, and 53, **each segment** of the utterance **is assigned a classification** indicating one of a plurality of states of a user (for example, truth, stress, excitement, unsure, very stressed, voice control, etc.). See e.g., claims 1, 15, 28, 40, and 53 and page 8, lines 6-7 of the specification. Such classification assigned to each segment of the utterance is used to generate utterance parameter vectors that indicate the state of the user. See e.g., claims 1, 15,

28, 40, and 53 and page 9, line 10 through page 10, line 12 of the specification. Page 8, line 1 through page 9, line 9 (paragraphs [0021] – [0023]) of the specification illustrates various embodiments of this claim limitation, for example:

> "[0021] Referring to FIG. 2, in step 106 the utterance is partitioned 202 into segments. A segment is each phrase in the utterance with a minimum number of phonemes. The starting and ending points of a segment may be determined by detecting a pause, a silence or a sudden change in the utterance. The length of each segment may be uniform or non-uniform.
>
> [0022] In one embodiment, each segment is assigned 204 a classification indicating one of a plurality of states of a user. For example, the classifications may include P1 (truth), P2 (stress), P3 (excitement), P4 (unsure), P5 (very stressed), P6 (voice control), P7 (tense), P8 (very tense), P9 (inaccurate), PA (implausible), PB (deceiving), PC (speech speed), PD (pause ratio), PE (clearness), PF (drowsy), PG (tired), PH (hesitation), PI (variance of the pitch during a segment), PJ (difference in pitch from one segment to the next segment), and PK (shape of the frequency spectrum in the segment) …
>
> [0023] In another embodiment, the segments may correspond to words and pauses in the utterance and each word may be assigned a classification of a general word and a particular type of emotionally sensitive word based on speech recognition. For example, in the utterance "Uhh, find a gas station," a classification such as "frustration word" may be assigned to "Uhh" and the classification "general word" may be assigned to the remaining words "find a

gas station." For another example, in the utterance "Find me …[pause] a gas station nearby, a classification such as "at ease" or "pause" may be assigned to the [pause] in the utterance and the classification "general words" may be assigned to the remaining words "Oh find me a gas station nearby."

Cooper does not disclose or even suggest obtaining utterance parameters that indicate the state of the user by partitioning the utterance into segments and assigning one of a plurality of classifications to **each segment**, where each classification corresponds to at least one of a plurality of states of the user (for example, P1 (truth), P2 (stress), P3 (excitement), P4 (unsure), P5 (very stressed), etc.), as recited in independent claims 1, 15, 28, 40, and 53. The 9/27/2007 final office action points to col. 2, lines 58-64 of Cooper and col. 43, lines 62-67 of Cooper as disclosing this limitation. See 9/27/2007 Final Office Action, page 3, lines 10-16. However, column 2, lines 58-64 of Cooper merely reads:

"…Such input could be user information, such as information about the user's experience, the time between user sessions, the amount of time a user pauses when recording a message, the user's emotional state, whether the user uses words associated with polite discourse, and the amount of time since a user provided input to the virtual assistant during a session…"

Also, column 43, lines 62-67 of Cooper merely reads:

"…Alternatively, the user information input into the virtual assistant could be information about the user's emotion, which could be based on information about the user's voice volume, word choice and speech rate. Based on such information, the virtual assistant could automatically determine the user's emotional state, calm or angry, for example…"

However, the above passages of Cooper merely disclose that the virtual assistant could determine the user's emotional state (calm or angry) based on information such as the user's voice volume, word choice, and speech rate, but does not disclose at all **how** the user's emotional state can be determined based on such information. The 9/27/2007 final office action states that determining the user's emotional state based on a segment or word choice as stated in column 43, lines 62-67 of Cooper discloses the above limitations of claims 1, 15, 28, 40, and 53. See 9/27/2007 Final Office Action, page 3, lines 13-16. However, the above passages in column 2, lines 58-64 and col. 43, lines 62-67 of Cooper nowhere discloses or even mentions that **each segment** of the utterance **is assigned a classification** indicating one of a plurality of states of a user (for example, truth, stress, excitement, unsure, very stressed, voice control, etc.), which is completely different from determining the user's emotional state by a single word choice "sorry" as provided as an example in the 9/27/2007 final office action, see 9/27/2007 Final Office Action, page 3, lines 13-16. The above disclosure of column 43, lines 62-67 of Cooper merely states that the user's emotional state may be determined based on word choice, but does not disclose the specific way in which the user's emotional state can be determined. On the other hand, the inventions of independent claims 1, 15, 28, 40, and 53 determines the user's emotional state specifically by assigning a classification to **each segment** of the utterance, as recited in claims 1, 15, 28, 40, and 53.

In addition, the 9/27/2007 final office action does not offer any rationale, evidence, basis in fact, or technical reasoning to reasonably support that obtaining utterance parameters indicating the state of the user by partitioning the utterance into segments and **assigning one of a plurality of classifications to each segment** is inherent in the disclosure of Cooper. There is no reason for the general disclosure of speech recognition in Cooper to be necessarily

accompanied by assigning such classifications corresponding to the user's states to each of the segments of the speech, as recited in claims 1, 15, 28, 40, and 53. See MPEP §2112 for the requirements of an anticipation rejection based on inherency.

In addition, independent claims 15, 28, and 40 further recite:

"…generating an utterance parameter vector based upon the utterance parameters;

…converting the utterance parameter vector to an indication representing the state of the user …"

When rejecting claims 15, 28, and 40, the 9/27/2007 Final Office Action does not even state or mention at all where in Cooper such additional limitations of "generating an utterance parameter vector based upon the utterance parameters and converting the utterance parameter vector to an indication representing the state of the user" are disclosed in Cooper. See page 2, line 22 through page 3, line 16 of the 9/27/2007 Final Office Action, where such limitation of claims 15, 28, and 40 is not addressed at all.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. See MPEP §2131. Since Cooper fails to disclose (i) that **each segment** of the utterance **is assigned a classification** indicating one of a plurality of states of a user as recited in independent claims 1, 15, 28, 40, and 53 either expressly or inherently and (ii) generating an utterance parameter vector based upon the utterance parameters and converting the utterance parameter vector to an indication representing the state of the user as recited in claims 15, 28, and 40 either expressly or inherently, the inventions of claims 1, 15, 28, 40, and 53 are patentably distinct from Cooper and should be allowable.

Claims 3-6, 8, 10-11, 17-19, 21, 23-24, 30-32, 34, 36, 42-46, 48-49, 54-56, 58, and 60 are dependent directly or indirectly from independent claims 1, 15, 28, 40, or 53. Thus, all arguments set forth above regarding claims 1, 15, 28, 40, or 53 with regard to Cooper are equally applicable to these dependent claims 3-6, 8, 10-11, 17-19, 21, 23-24, 30-32, 34, 36, 42-46, 48-49, 54-56, 58, and 60, and they are also patentably distinct from Cooper for at least the same reasons as set forth above for independent claims 1, 15, 28, 40, or 53.

In addition, the 9/27/07 final office action rejects most of these dependent claims asserting that they are allegedly inherently disclosed in Cooper, without offering any rationale, evidence, basis in fact, or technical reasoning supporting such inherency, which is an improper rejection, as explained in more detail below.

2. Dependent claims 3 and 54, argued separately

Dependent claims 3 and 54 depend directly or indirectly from independent claims 1 and 53, respectively, and also recite:

"…generating an utterance parameter vector based upon the utterance parameters;

…converting the utterance parameter vector to an indication representing the state of the user …"

The 9/27/07 final office action *conclusively* asserts that such limitation is *inherent* in analyzing speech utterances received from a user and automatically determining the user's emotional state, pointing to the above passage in col. 43, lines 62-67 of Cooper. See 9/27/2007 Final Office Action, page 3, lines 17-21. However, the 9/27/2007 final office action does not offer any rationale, evidence, basis in fact, or technical reasoning as to **why it is inherent** in Cooper that an utterance parameter vector is generated based upon the utterance parameters as recited in claims 3 and 54, where the utterance parameters are those that were assigned to each

of the segments of the utterance as recited in independent claims 1 and 53 from which claims 3 and 54 depend. The 9/27/2007 final office action does not explain why the utterance parameter vector must necessarily be generated in Cooper as recited in claims 3 and 54, rather than by some other vector generation method different from that recited in claims 3 and 54. Rather, the 9/27/2007 Final Office Action conclusively states that such limitation of claims 3 and 54 is "inherent in analyzing speech utterances received form a user and automatically determining the user's emotional state" (see 9/27/2007 Final Office Action, page 3, lines 17-21), without offering any technical rationale as to why such utterance parameter vector must necessarily be generated in Cooper where the utterance parameters are those that were assigned to each of the segments of the utterance as recited in independent claims 1 and 53 from which claims 3 and 54 depend, rather than by some other vector generation method.

Note that Cooper does not even mention the term "vector" at all anywhere in the document, let alone generating the utterance parameter vector in the manner as recited in claims 3 and 54. When Cooper does not even mention the term "vector," it is without basis to assume that an utterance parameter vector is necessarily generated at all or necessarily generated in the manner as recited in claims 3 and 54 using the utterance parameters that were assigned to each of the segments of the utterance as recited in independent claims 1 and 53 from which claims 3 and 54 depend, rather than by some other vector generation method.

There is no reason for the general disclosure of speech recognition in Cooper to be necessarily accompanied by generating an utterance parameter vector based upon the utterance parameters as recited in claims 3 and 54, where the utterance parameters are those that were assigned to each of the segments of the utterance as recited in independent claims 1 and 53

from which claims 3 and 54 depend. See MPEP §2112 for the requirements of an anticipation rejection based on inherency, which states:

> "…The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (The claims were drawn to a disposable diaper having three fastening elements. The reference disclosed two fastening elements that could perform the same function as the three fastening elements in the claims. The court construed the claims to require three separate elements and held that the reference did not disclose a separate third fastening element, either expressly or inherently.)."

The 9/27/2007 Final Office Action does not offer any rationale, evidence, basis in fact, or technical reasoning to reasonably support an utterance parameter vector is generated based upon the utterance parameters as recited in claims 3 and 54, where the utterance parameters are

those that were assigned to each of the segments of the utterance as recited in independent claims 1 and 53 from which claims 3 and 54 depend. Such inherency rejection without technical reasoning is improper. Again, see MPEP 2112 on Requirements of Rejection based on Inherency:

> "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy,* 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original) (Applicant's invention was directed to a biaxially oriented, flexible dilation catheter balloon (a tube which expands upon inflation) used, for example, in clearing the blood vessels of heart patients). The examiner applied a U.S. patent to Schjeldahl which disclosed injection molding a tubular preform and then injecting air into the preform to expand it against a mold (blow molding). The reference did not directly state that the end product balloon was biaxially oriented. It did disclose that the balloon was "formed from a thin flexible inelastic, high tensile strength, biaxially oriented synthetic plastic material." *Id.* at 1462 (emphasis in original). The examiner argued that Schjeldahl's balloon was inherently biaxially oriented. The Board reversed on the basis that the examiner did not provide objective evidence or cogent technical reasoning to support the conclusion of inherency.)."

Therefore, it is respectfully submitted that the inventions of dependent claims 3 and 54 are not anticipated by, and are patentably distinct from, Cooper for this additional reason.

3. Dependent claims 4, 17, 30, and 42, argued separately

Claims 4, 17, 30, and 42 depend directly or indirectly from independent claims 1, 15, 28, and 40, respectively, and variously recite that the utterance parameter vector is generated by:

"…determining the number of segments for each classification; and

dividing the number of segments for each classification by a total number of segments in the utterance."

Again, the 9/27/07 final office action merely asserts that such limitation is *inherent* in determining speech prosody (speech rate, loudness, or volume), pointing to the above passage in column 43, lines 64-65 of Cooper, without offering any rationale, evidence, basis in fact, or technical reasoning as to why it is inherent in Cooper that the utterance parameter vector is ***necessarily*** generated by determining the number of segments for each classification and dividing the number of segments for each classification by a total number of segments in the utterance, where the utterance parameters are those that were assigned to each of the segments of the utterance as recited in claims 1, 15, 28, and 40 from which claims 4, 17, 30, and 42 depend, respectively. See 9/27/2007 Final Office Action, page 4, lines 1-4. The 9/27/2007 office action does not explain why the utterance parameter vector must necessarily be generated in Cooper as recited in claims 4, 17, 30, and 42 rather than by some other vector generation method. In addition, the 9/27/2007 office action offers no technical explanation or reasoning as to what speech prosody has anything to do with generating the utterance parameter vector by determining the number of segments for each classification and dividing the number of segments for each classification by a total number of segments in the utterance, where the classifications correspond to states of the user, as recited in claims 4, 17, 30, and 42.

As explained above, such inherency rejection based on Cooper is improper, since the 9/27/2007 Final Office Action does not offer any rationale, evidence, basis in fact, or technical reasoning explaining why the limitations of claims 4, 17, 30, and 42 are necessarily present and thus inherent in Cooper, except for a conclusive assertion. Such inherency rejection without technical reasoning is clearly erroneous under settled law on inherency. To establish inherency, it must be shown why the missing elements of these dependent claims are **necessarily present** in Cooper and that it would be so recognized by persons of ordinary skill. The mere fact that a certain thing **may** result from a given set of circumstances is not sufficient. Again, see MPEP §2112 for the Requirements of a Rejection Based on Inherency.

Therefore, it is respectfully submitted that the inventions of dependent claims 4, 17, 30, and 42 are not anticipated by, and are patentably distinct from Cooper for this additional reason.

B. Rejections of claims 7, 9, 20, 22, 33, 35, 47, 57, and 59 under 35 U.S.C. §103(a) as being unpatentable over Cooper in view of Pelland

In paragraph 4 of the 9/27/2007 Final Office Action, claims 7, 9, 20, 22, 33, 35, 47, 57, and 59 were rejected as being unpatentable over Cooper in view of Pelland. See 9/27/2007 Final Office Action, page 5, lines 2-24. This rejection is traversed.

As explained above, Cooper fails to disclose or even suggest explicitly or inherently (i) that **each segment** of the utterance **is assigned a classification** indicating one of a plurality of states of a user as recited in independent claims 1, 15, 28, 40, and 53 and (ii) generating an utterance parameter vector based upon the utterance parameters and converting the utterance parameter vector to an indication representing the state of the user as recited in claims 1, 15, 28, and 40. Since claims 7, 9, 20, 22, 33, 35, 47, 57, and 59 are dependent from independent

claims 1, 15, 28, 40, or 53 directly or indirectly, all arguments made above regarding claims 1, 15, 28, 40, or 53 with respect to Cooper are equally applicable to claims 7, 9, 20, 22, 33, 35, 47, 57, and 59.

In addition, similar to Cooper, Pelland also fails to disclose or suggest (i) that **each segment** of the utterance **is assigned a classification** indicating one of a plurality of states of a user as recited in independent claims 1, 15, 28, 40, and 53 and (ii) generating an utterance parameter vector based upon the utterance parameters and converting the utterance parameter vector to an indication representing the state of the user as recited in independent claims 1, 15, 28, and 40, where claims 7, 9, 20, 22, 33, 35, 47, 57, and 59 are dependent from independent claims 1, 15, 28, 40, or 53 directly or indirectly. Pelland was relied on in the 9/27/2007 Final Office Action merely for the alleged disclosure of adjusting the tone or gender of a personal assistant. See 9/27/2007 Final Office Action, page 5, lines 14-19. However, Pelland has nothing to do with and has no disclosure or suggestion on assigning one of a plurality of classifications to each segment of the utterance, where each classification corresponds to at least one of a plurality of states of the user, as recited in independent claims 1, 15, 28, 40, and 53 from which claims 7, 9, 20, 22, 33, 35, 47, 57, and 59 depend directly or indirectly.

To establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. See MPEP §2143.03. The deficient disclosures of Cooper and Pelland preclude establishing even a *prima facie* basis from which a proper determination of obviousness of claims 7, 9, 20, 22, 33, 35, 47, 57, and 59 can be made. Therefore, it is respectfully submitted that the inventions of claims 7, 9, 20, 22, 33, 35, 47, 57, and 59 are also patentably distinct from Cooper and Pelland.

C. Rejection of Claims 12-14, 25-27, 37-39, 50-52, and 61 under 35 U.S.C. §103(a) as being unpatentable over Cooper in view of Millie

In paragraph 5 of the Office Action, claims 12-14, 25-27, 37-39, 50-52, and 61 were rejected as being unpatentable over Cooper in view of Millie. See 9/27/2007 Final Office Action, page 6, lines 1-22. This rejection is traversed.

As explained above, Cooper fails to disclose or even suggest explicitly or inherently (i) that **each segment** of the utterance **is assigned a classification** indicating one of a plurality of states of a user as recited in independent claims 1, 15, 28, 40, and 53 and (ii) generating an utterance parameter vector based upon the utterance parameters and converting the utterance parameter vector to an indication representing the state of the user as recited in claims 15, 28, and 40. Since claims 12-14, 25-27, 37-39, 50-52, and 61 are dependent from independent claims 1, 15, 28, 40, or 53 directly or indirectly, all arguments made above regarding claims 1, 15, 28, 40, or 53 with respect to Cooper are equally applicable to claims 12-14, 25-27, 37-39, 50-52, and 61.

In addition, similarly to Cooper, Millie also fails to disclose or suggest (i) that **each segment** of the utterance **is assigned a classification** indicating one of a plurality of states of a user as recited in independent claims 1, 15, 28, 40, and 53 and (ii) generating an utterance parameter vector based upon the utterance parameters and converting the utterance parameter vector to an indication representing the state of the user as recited in independent claims 15, 28, and 40, where claims 12-14, 25-27, 37-39, 50-52, and 61 are dependent from independent claims 1, 15, 28, 40, or 53 directly or indirectly. Millie was relied on in the 9/27/2007 Final Office Action merely for the alleged disclosure of an on-board computer used in an automobile or navigation system. See 9/27/2007 Final Office Action, page 6, lines 10-18. However,

Millie has nothing to do with and has no disclosure or suggestion on assigning one of a plurality of classifications to each segment of the utterance, where each classification corresponds to at least one of a plurality of states of the user, as recited in independent claims 1, 15, 28, 40, and 53 from which claims 12-14, 25-27, 37-39, 50-52, and 61 depend directly or indirectly.

To establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. See MPEP §2143.03. The deficient disclosures of Cooper and Millie preclude establishing even a *prima facie* basis from which a proper determination of obviousness of claims 12-14, 25-27, 37-39, 50-52, and 61 can be made. Therefore, it is respectfully submitted that the inventions of claims 12-14, 25-27, 37-39, 50-52, and 61 are also patentably distinct from Cooper and Pelland.

In summary, Appellants respectfully submit that the rejections of claims 1, 3-15, 17-28, 30-40, and 42-61 are clearly erroneous for the foregoing reasons. Reversal of the final rejections of claims 1, 3-15, 17-28, 30-40, and 42-61 is respectfully requested.

Respectfully submitted,

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Claims appendix

1. A method of adjusting a voice prompt of a system based upon a state of a user of the system, the method comprising:

receiving an utterance of the user;

obtaining utterance parameters from the utterance, the utterance parameters indicating the state of the user;

determining the state of the user based upon the utterance parameters; and

adjusting the voice prompt by adjusting at least one of a tone of voice of the voice prompt, a content of the voice prompt, a prosody of the voice prompt, and a gender of the voice prompt based upon the determined state of the user, wherein obtaining utterance parameters comprises:

partitioning the utterance into segments; and

assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user.

3. The method of claim 1, wherein determining the state of the user comprises:

generating an utterance parameter vector based upon the utterance parameters;

converting the utterance parameter vector to an indication representing the state of the user; and

determining the state of the user based upon the indication.

4. The method of claim 3, wherein generating the utterance parameter vector comprises:

determining the number of segments for each classification; and

dividing the number of segments for each classification by a total number of segments in the utterance.

5. The method of claim 3, wherein converting the utterance parameter vector to an indication comprises applying a function to the utterance parameter vector to generate one of a scalar, a vector of fuzzy classes, and an index representing the state of the user.

6. The method of claim 5, wherein the indication is the scalar and determining the state of the user based upon the indication comprises determining that the user is in a first state if the scalar is greater than a predetermined threshold and that the user is in a second state if the scalar is not greater than the predetermined threshold.

7. The method of claim 1, wherein adjusting the voice prompt comprises adjusting the tone of the voice prompt to use a tone that is consistent with the determined state of the user.

8. The method of claim 1, wherein adjusting the voice prompt comprises adjusting the content of the voice prompt to use content that is consistent with the determined state of the user.

9. The method of claim 1, wherein adjusting the voice prompt comprises adjusting the gender of the voice prompt to use a gender that is consistent with the determined state of the user.

10. The method of claim 1, wherein adjusting the voice prompt comprises adjusting the prosody of the voice prompt to use prosody that is consistent with the determined state of the user.

11. The method of claim 10, wherein adjusting the prosody of the voice prompt comprises pausing the voice prompt.

12. The method of claim 1, wherein the system is an on-board computer used in an automobile or a navigation system used in an automobile.

13. The method of claim 12, further comprising receiving information on a driving condition from the on-board computer or the navigation system and determining the state of the user based upon the information on driving condition.

14. The method of claim 1, further comprising adjusting a graphical character display corresponding to the voice prompt based upon the determined state of the user.

15. A method of adjusting a voice prompt of a system based upon a state of a user of the system, the method comprising:

receiving an utterance of the user;

obtaining utterance parameters from the utterance, the utterance parameters indicating the state of the user;

generating an utterance parameter vector based upon the obtained utterance parameters;

converting the utterance parameter vector to an indication representing the state of the user;

determining the state of the user based upon the indication; and

adjusting the voice prompt based upon the determined state of the user, wherein obtaining utterance parameters comprises:

partitioning the utterance into segments; and

assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user.

17. The method of claim 15, wherein generating the utterance parameter vector comprises:

determining the number of segments for each classification; and

dividing the number of segments for each classification by a total number of segments in the utterance.

18. The method of claim 15, wherein converting the utterance parameter vector to the indication comprises applying a function to the utterance parameter vector to generate one of a scalar, a vector of fuzzy classes, and an index representing the state of the user.

19. The method of claim 18, wherein the indication is the scalar and determining the state of the user based upon the scalar comprises determining that the user is in a first state if the scalar is greater than a predetermined threshold and that the user is in a second state if the scalar is not greater than the predetermined threshold.

20. The method of claim 15, wherein adjusting the voice prompt comprises adjusting the tone of the voice prompt to use a tone that is consistent with the determined state of the user.

21. The method of claim 15, wherein adjusting the voice prompt comprises adjusting the content of the voice prompt to use content that is consistent with the determined state of the user.

22. The method of claim 15, wherein adjusting the voice prompt comprises adjusting the gender of the voice prompt to use a gender that is consistent with the determined state of the user.

23. The method of claim 15, wherein adjusting the voice prompt comprises adjusting the prosody of the voice prompt to use prosody that is consistent with the determined state of the user.

24. The method of claim 23, wherein adjusting the prosody of the voice prompt comprises pausing the voice prompt.

25. The method of claim 15, wherein the system is an on-board computer used in an automobile or a navigation system used in an automobile.

26. The method of claim 25, further comprising receiving information on a driving condition from the on-board computer or the navigation system and determining the state of the user based upon the information on driving condition.

27. The method of claim 15, further comprising adjusting a graphical character display corresponding to the voice prompt based upon the determined state of the user.

28. A system adjusting a voice prompt based upon a state of a user of the system, the system comprising:

a signal processing module for obtaining utterance parameters from utterance received from the user, the utterance parameters indicating the state of the user;

an utterance parameter vector generation module for generating an utterance

parameter vector based upon the obtained utterance parameters;

a user state determination module for converting the utterance parameter vector to an indication representing the state of the user and determining the state of the user based upon the indication; and

a speech waveform storage module for selecting an audio waveform for the voice prompt based upon the determined state of the user, wherein the signal processing module obtains the utterance parameters by:

partitioning the utterance into segments; and

assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user.

30. The system of claim 28, wherein the utterance parameter vector generation module generates the utterance parameter vector by:

determining the number of segments for each classification; and

dividing the number of segments for each classification by a total number of segments in the utterance.

31. The system of claim 28, wherein the user state determination module converts the utterance parameter vector to the indication by applying a function to the utterance parameter vector to generate one of a scalar, a vector of fuzzy classes, and an index representing the state of the user.

32. The system of claim 31, wherein the indication is the scalar and the user state determination module determines that the user is in a first state if the scalar is greater than a

predetermined threshold and that the user is in a second state if the scalar is not greater than the predetermined threshold.

33. The system of claim 28, wherein the speech waveform storage module selects the audio waveform of the voice prompt having a tone that is consistent with the determined state of the user.

34. The system of claim 28, wherein the speech waveform storage module selects the audio waveform of the voice prompt having content that is consistent with the determined state of the user.

35. The system of claim 28, wherein the speech waveform storage module selects the audio waveform of the voice prompt of a gender that is consistent with the determined state of the user.

36. The system of claim 28, wherein the speech waveform storage module selects the audio waveform of the voice prompt having prosody that is consistent with the determined state of the user.

37. The system of claim 28, wherein the system is an on-board computer used in an automobile or a navigation system used in an automobile.

38. The system of claim 37, wherein the user state determination module receives information on a driving condition from the on-board computer or the navigation system and determines the state of the user based upon the information on driving condition.

39. The system of claim 28, further comprising a display device for displaying a graphical character corresponding to the voice prompt to the user, the displayed graphical character being adjusted based upon the determined state of the user.

40. A system adjusting a voice prompt based upon a state of a user of the system, the system comprising:

a signal processing module for obtaining utterance parameters from utterance received from the user, the utterance parameters indicating the state of the user;

an utterance parameter vector generation module for generating an utterance parameter vector based upon the obtained utterance parameters;

a user state determination module for converting the utterance parameter vector to an indication representing the state of the user and determining the state of the user based upon the indication; and

a speech synthesizer module for generating an audio waveform of the voice prompt based upon the determined state of the user, wherein the signal processing module obtains the utterance parameters by:

partitioning the utterance into segments; and

assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user.

42. The system of claim 40, wherein the utterance parameter vector generation module generates the utterance parameter vector by:

determining the number of segments for each classification; and

dividing the number of segments for each classification by a total number of segments in the utterance.

43. The system of claim 40, wherein the user state determination module converts the utterance parameter vector to the indication by applying a function to the utterance parameter vector to generate one of a scalar, a vector of fuzzy classes, and an index representing the state of the user.

44. The system of claim 43, wherein the indication is the scalar and the user state determination module determines that the user is in a first state if the scalar is greater than a predetermined threshold and that the user is in a second state if the scalar is not greater than the predetermined threshold.

45. The system of claim 40, wherein the speech synthesizer module generates the audio waveform of the voice prompt to have a tone that is consistent with the determined state of the user.

46. The system of claim 40, wherein the speech synthesizer module generates the audio waveform of the voice prompt based upon content that is consistent with the determined state of the user.

47. The system of claim 40, wherein the speech synthesizer module generates the audio waveform of the voice prompt to be of a gender that is consistent with the determined state of the user.

48. The system of claim 40, wherein the speech synthesizer module generates the audio waveform of the voice prompt having prosody that is consistent with the determined state of the user.

49. The system of claim 40, further comprising a speech storage module storing speech and outputting speech that is consistent with the determined state of the user to the

speech synthesizer module.

50. The system of claim 40, wherein the system is an on-board computer used in an automobile or a navigation system used in an automobile.

51. The system of claim 50, wherein the user state determination module receives information on a driving condition from the on-board computer or the navigation system and determines the state of the user based upon the information on driving condition.

52. The system of claim 40, further comprising a display device for displaying a graphical character corresponding to the voice prompt to the user, the displayed graphical character being adjusted based upon the determined state of the user.

53. A system adjusting a voice prompt based upon a state of a user of the system, the system comprising:

means for obtaining utterance parameters from utterance received from the user, the utterance parameters indicating the state of the user;

means for determining the state of the user based upon the utterance parameters; and

means for adjusting the voice prompt by adjusting at least one of a tone of voice of the voice prompt, a content of the voice prompt, a prosody of the voice prompt, and a gender of the voice prompt based upon the determined state of the user, wherein the means for obtaining utterance parameters comprises:

means for partitioning the utterance into segments; and

means for assigning one of a plurality of classifications to each segment, each

classification corresponding to at least one of a plurality of states of the user.

54. The system of claim 53, wherein the means for determining the state of the user based upon the utterance comprises:

means for generating an utterance parameter vector based upon the utterance parameters;

means for converting the utterance parameter vector to an indication representing the state of the user; and

means for determining the state of the user based upon the indication.

55. The system of claim 54, wherein the means for converting the utterance parameter vector to the indication applies a function to the utterance parameter vector to generate one of a scalar, a vector of fuzzy classes, and an index representing the state of the user.

56. The system of claim 55, wherein the indication is the scalar and the means for determining the state of the user based upon the indication determines that the user is in a first state if the scalar is greater than a predetermined threshold and that the user is in a second state if the scalar is not greater than the predetermined threshold.

57. The system of claim 53, wherein the means for adjusting the voice prompt adjusts the tone of the voice prompt to use a tone that is consistent with the determined state of the user.

58. The system of claim 53, wherein the means for adjusting the voice prompt adjusts the content of the voice prompt to use content that is consistent with the determined

state of the user.

59. The system of claim 53, wherein the means for adjusting the voice prompt adjusts the gender of the voice prompt to use a gender that is consistent with the determined state of the user.

60. The system of claim 53, wherein the means for adjusting the voice prompt adjusts the prosody of the voice prompt to use prosody that is consistent with the determined state of the user.

61. The system of claim 53, wherein the system is an on-board computer used in an automobile or a navigation system used in an automobile.

Evidence appendix

None.

Related proceedings appendix

None.